

## **TENT WITH ASYMMETRICAL POLE SLEEVES**

### **TECHNICAL FIELD OF THE INVENTION**

(0001) The present invention relates generally to tents, and more particularly to tent construction.

### **BACKGROUND OF THE INVENTION**

(0002) Tents are portable shelters made of lightweight, often waterproof, fabrics. Typically, a tent is a collapsible shelter of canvas or other material stretched over and sustained by a frame. Tents are used for camping outdoors or as temporary structures. Tents come in a variety of shapes and sizes. The most popular shape is the dome, or free standing, model. This model is easy to set up and does not require support from tree limbs or other objects.

(0003) Most contemporary backpacking tents are free standing, in that, when the tent is set up, the entirety of the pole structure for the tent is attached to the tent. This feature permits the erected tent to be lifted by one or more campers, without the tent losing its shape. A rain fly may extend over the pole structure of the tent, and may be attached to the tent or may be staked to the ground. The tent may also be staked to the ground.

(0004) For many free standing tent structures, long poles are used that are flexible and that are extended between opposite corners of the tent. These poles are bent into arcs so that the ends can be attached to the tent corners or elsewhere along the outside edges of the floor of the tent. The fabric of the tent is attached along the arcs, such as by loops, hooks, or sleeves. The ends of the poles that are attached to the corners of the tent (or alternatively at the edges of the floor of the tent), coupled with the attachment of the walls and the roof of the tent to the central portion of the poles, puts the tent fabric in tension, causing the tent fabric to take structure. A rain fly may be extended over the poles to provide protection against the weather.

### SUMMARY OF THE INVENTION

(0005) The following presents a simplified summary of some embodiments of the invention in order to provide a basic understanding of the invention. This summary is not an extensive overview of the invention. It is not intended to identify key/critical elements of the invention or to delineate the scope of the invention. Its sole purpose is to present some embodiments of the invention in a simplified form as a prelude to the more detailed description that is presented later.

(0006) In accordance with an embodiment of the invention, poles for a tent are attached along edges of sidewalls for the tent. The poles are not evenly spaced from the edges, but instead are asymmetrically spaced from the edges. In accordance with an embodiment of the invention, a middle portion of each pole is spaced apart a maximum distance from the central portion of the respective edge. The spacing then tapers down to the top and corner of the tent. In this manner, the pole has a somewhat parabolic shape relative to the edge.

(0007) The asymmetrical poles may be attached to the edge utilizing one of many different mechanisms. As nonlimiting examples, the poles may be attached by sleeves,

hooks, loops, or other suitable structures. These mechanisms may be configured to position the poles in the asymmetrical fashion with respect to the edge.

(0008) The asymmetrical configuration of poles of the present invention spaces a rain fly further away from the sidewalls of the tent. This feature permits better flow of water off of the rain fly, increases ventilation for the tent, and assures adequate spacing of the bottom edge of the rain fly away from the sidewalls of the tent so that rainwater runoff may be directed away from the tent.

(0009) Other features of the invention will become apparent from the following detailed description when taken in conjunction with the drawings, in which:

### **BRIEF DESCRIPTION OF THE DRAWINGS**

(0010) FIG. 1 is a side perspective view of a tent incorporating an embodiment of the invention;

(0011) FIG. 2 is a partial cut-away side view of a prior art tent;

(0012) FIG. 3 is a side view of a tent incorporating a second embodiment of the invention;

(0013) FIG. 4 is a partial cut-away side view of a tent incorporating a third embodiment of the invention; and

(0014) FIG. 5 is a partial cut-away side view of a tent incorporating a fourth embodiment of the invention.

### DETAILED DESCRIPTION

(0015) In the following description, various embodiments of the present invention will be described. For purposes of explanation, specific configurations and details are set forth in order to provide a thorough understanding of the embodiments. However, it will also be apparent to one skilled in the art that the present invention may be practiced without the specific details. Furthermore, well-known features may be omitted or simplified in order not to obscure the embodiment being described.

(0016) Referring now to the drawings, in which like reference numerals represent like parts throughout the several views, FIG. 1 shows a tent 20 incorporating an embodiment of the invention. The tent 20 shown in the drawings is a free standing model. The tent 20 may also be considered a "dome" style tent, although features of the invention may be used in different models of tents, whether free standing, dome, or not. Thus, although described with reference to the tent 20, the invention may be utilized with many different types of tent structures.

(0017) The tent 20 includes poles 22 for supporting the tent 20 in an upright, assembled configuration. The tent 20 includes two poles 22, although another number may be used.

Each of the two poles 22 extends between opposite diagonal corners 24 of the tent 20 through sleeves 26 that extend along adjoining edges 30 of sidewalls 28 for the tent. The poles 22 also extend through a loop 32 or other structure at the top of the tent 20 so that the apex of the tent is supported.

(0018) In accordance with a manner known in the art, the poles 22 are typically straight, but are flexible so that they can be bent. When the poles are installed, they are extended through the sleeves 26 and are bent into arcs and are attached at the corners 24 of the tent 20. Specifically, when assembling the tent 20, a user inserts one of the poles 22 through one diagonal set of sleeves (e.g., the sleeves 26) and attaches one end of the pole to a corner 24, such as by inserting a pin (not shown, but known in the art) attached to the corner 24 into a hollow end of the pole 22. Alternatively, the end of the pole 22 may be attached in another manner, such as by inserting the end into a sleeve 132 (FIG. 3) located at the corner 24.

(0019) In any event, the end of the pole 22 is attached to the first corner 24. The pole 22 is then pressed from the opposite, distal end, driving the pole 22 into the pin (if used, but not shown), sleeve 132, or other suitable attachment, and the pole 22 is tensioned against the sleeves

26. When the pole 22 is suitably tensioned, the distal end of the pole is similarly connected to an opposite corner 24 of the tent 20.

(0020) The tension in the poles 22 places upward tension on the sleeves 26 and outward tension on the corners 24. The sleeves 26 cause the tension in the poles 22 to drive the ends of the poles 22 into the corners 24, forcing the corners downward. The combined tension puts the tent sidewalls 28 and the tent floor in tension, which is counteracted by the inflexible nature of the tent walls. As such, the sidewalls 28 of the tent 20 are forced outward into the assembled position shown in FIG. 1. In addition, the tension in the poles 22 presses the corners 24 outward, causing the floor of the tent 20 to be placed under slight tension, removing wrinkles and maximizing floor space within the tent 20.

(0021) Thus, the connection of the poles 22 provides stability for the tent 20 when the tent 20 is assembled. The poles 22 connect directly to the tent, and the tent may be lifted while maintaining the structure shown in the drawing. Thus, the tent is "free standing," in that it does not need to be attached to the ground or another structure for stability.

(0022) A tent using such a pole system is known in the



art. However, an embodiment of the present invention is directed to a new spacing of poles relative to the tent. Specifically, as described below, the poles are asymmetrically spaced from the tent.

(0023) FIGS. 1, and 3-5 show four different embodiments of tents 20, 120, 220, and 320. Each of these embodiments includes similar features, but has different mechanisms 26, 126, 226, 326 (e.g., sleeves or hooks) for attaching the respective tent 20, 120, 220, 320 to the respective poles 22, 122, 222, 322. For ease of reference, for each of these embodiments, the last two numbers for like elements are the same, but the first number indicates the element for that specific example. For example, the elements in FIG. 3 are similar to FIG. 1, but they additionally include the reference numeral "1" in the hundreds place (e.g., in front of the two-digit reference numerals representing like parts to those in FIG. 1). The tent in FIG. 4 includes the reference numeral "2" in front of like reference numerals, and the tent in FIG. 5 includes the reference numeral "3" in front of like elements.

(0024) FIG. 2 shows a partial cut-away side view of a prior art tent 50. As can be seen in the figure, for prior art tents, the sleeves 52 are positioned and configured so

that poles 54 for the tent 50 are spaced evenly from the adjoining side edges 58 of the sidewalls 56 for the tent 50. That is, the outer edges of the sleeves 52 are each spaced apart the same distance from the respective side edge 58, and each of the sleeves 52 is spaced a constant dimension from the side edge 58 for the length the sleeve 52. This configuration causes a rain fly 60 for the tent 50 to be spaced equally along the pole's length from the respective side edge 58.

(0025) Although the prior art tent 50 works well for its intended purpose, in practice, the poles 54 for prior art tents were too close to the side edges 58, causing the rain fly 60 to be too close to the sidewall 56. Thus, when winds approach the tent 50, for example in the direction of the arrow 70 in FIG. 3, the portion of the rain fly 60 in-between two adjacent poles 54 may be blown against the side of the tent 50, reducing the ventilation provided between the rain fly 60 and the tent 50. In addition, contact of the rain fly 60 with the tent 50 may cause water to drain off the rain fly 60 and onto the tent.

(0026) Applicant has found that increasing the size of all the sleeves 52 that the poles 54 are spaced a greater distance from the side edges 58 adds costs to the tent, because the change adds length to the poles, which are

expensive.

(0027) To address the prior art problems described above, without adding significant length to the poles 22, in accordance with an embodiment of the invention, as can be seen in FIG. 3, the tent sidewalls 28 and tent side edge 30 are contoured inward so that a middle portion 80 of the poles 122 is spaced farther from an adjacent side edge 130 than a top portion 82 or a bottom portion 84. Thus, the spacing of the poles 122 from the side edges 130 of the tent 120 is asymmetrical. This configuration permits the poles 122 to be anchored to the top of the tent 120 (e.g., to the loop 132) and to the corners 124 of the tent 120, maximizing the tent dimensions in those areas, but also permits the bottom portion of a rain fly 140 to be spaced significantly apart from the sidewalls 128 of the tent 120.

(0028) In accordance with an embodiment of the invention, relative to prior art tents (e.g., the prior art tent 50), the poles 122 remain in the same position (i.e., maintain the same configuration as in the prior art tents), and the body or sidewalls 28 and edges 30 are tapered so that the poles 22 can have the asymmetrical profile. This difference can be seen, for example, by comparing FIGS. 2 and 4.

(0029) As can be seen in the drawings, a variety of different mechanisms 26, 126, 226, 326 may be used for asymmetrically spacing the poles 22 from the side edges 30. For example, as shown in FIGS. 1, 3, and 4, sleeves 26, 126, or 226 may be used. The sleeves 26, 126, or 226 are provided as nonlimiting examples, but illustrate a variety of different arrangements of sleeves that may be used. Each of the sleeves 26, 126, 226 shown in these figures has inconsistent dimensioning along its length, so that the asymmetrical spacing of the poles 22 relative to the side edges is permitted. The sleeves 26, 126, or 226 may be provided as a plurality of small segments, or may be provided as long continuous segments, and may extend over the top of the tent 20 or along only portions of the side edges 30. Additional embodiments may include webbing and pole clips 326 (FIG. 5), or another suitable structure for attaching the poles 22 to the side edges 30 and suitably spacing the poles in the asymmetrical configuration.

(0030) The asymmetrical poles 22 of the present invention provide additional ventilation for a tent, such as the tent 20. First, the bottom edge of a rain fly such as the rain fly 140 in FIG. 3 is spaced farther from the sidewalls 28 for the tent 20. In addition, a wider air gap is provided

between the middle portion 80 of the poles 122, permitting greater air flow between the rain fly 140 and the tent 120. This additional ventilation and the spacing of the bottom of the rain fly 140 from the sidewalls 128 is provided without sacrificing the stability offered by attachment of the poles 122 to the corners 24 and top 72.

(0031) If desired, a tent may be configured so that poles 22 may taper inward at the corners only, and the spacing is relatively the same around the rest of the tent. However, in such an embodiment, some interior head space is lost. Similarly, the poles may extend against the top of the tent with the spacing relatively the same around the rest of the tent, including the corners. However, such an embodiment of a tent does not utilize as large of a floor plan as is supported by the pole structure. For either of these structures, however, the pole length is less than if the poles were symmetrically spaced from the side edges.

(0032) Although the invention has been described with reference to the poles being spaced from a juncture of two sidewalls, in practice a tent may have rounded sidewalls, or corners of the tent may otherwise not be well defined. Thus, as used herein and in the claims, "side edges" is meant to be the area of the tent body adjacent to the pole, and may in

practice be a side wall. Also, as used herein, the sidewalls are meant to include the surface along which the poles extend, including the top of the tent.

(0033) Also, although the invention is described with reference to the poles being attached to the corners, the poles may alternatively extend to other locations, typically adjacent to floor edges of the tent. However, in accordance with an embodiment, the poles extend from one floor edge, across the sidewalls, to another floor edge, and the poles are attached to the tent and placed in tension. The asymmetrical spacing occurs along that length.

(0034) Other variations are within the spirit of the present invention. Thus, while the invention is susceptible to various modifications and alternative constructions, a certain illustrated embodiment thereof is shown in the drawings and has been described above in detail. It should be understood, however, that there is no intention to limit the invention to the specific form or forms disclosed, but on the contrary, the intention is to cover all modifications, alternative constructions, and equivalents falling within the spirit and scope of the invention, as defined in the appended claims.

(0035) All references, including publications, patent

applications, and patents, cited herein are hereby incorporated by reference to the same extent as if each reference were individually and specifically indicated to be incorporated by reference and were set forth in its entirety herein.

(0036) The use of the terms "a" and "an" and "the" and similar referents in the context of describing the invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The terms "comprising," "having," "including," and "containing" are to be construed as open-ended terms (i.e., meaning "including, but not limited to,") unless otherwise noted. The term "connected" is to be construed as partly or wholly contained within, attached to, or joined together, even if there is something intervening. Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein. All methods described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted

by context. The use of any and all examples, or exemplary language (e.g., "such as") provided herein, is intended merely to better illuminate embodiments of the invention and does not pose a limitation on the scope of the invention unless otherwise claimed. No language in the specification should be construed as indicating any non-claimed element as essential to the practice of the invention.

(0037) Preferred embodiments of this invention are described herein, including the best mode known to the inventors for carrying out the invention. Variations of those preferred embodiments may become apparent to those of ordinary skill in the art upon reading the foregoing description. The inventors expect skilled artisans to employ such variations as appropriate, and the inventors intend for the invention to be practiced otherwise than as specifically described herein. Accordingly, this invention includes all modifications and equivalents of the subject matter recited in the claims appended hereto as permitted by applicable law. Moreover, any combination of the above-described elements in all possible variations thereof is encompassed by the invention unless otherwise indicated herein or otherwise clearly contradicted by context.